



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/594,800 | 09/28/2006 | Kenji Furukawa | 1217-062918 | 6717 |

28289 7590 03/03/2010
THE WEBB LAW FIRM, P.C.
700 KOPPERS BUILDING
436 SEVENTH AVENUE
PITTSBURGH, PA 15219

| |
|----------|
| EXAMINER |
|----------|

WARE, DEBORAH K

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1651

| | |
|-----------|---------------|
| MAIL DATE | DELIVERY MODE |
|-----------|---------------|

03/03/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/594,800 | Applicant(s) FURUKAWA ET AL. | |
| | Examiner DEBBIE K. WARE | Art Unit 1651 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-27 is/are pending in the application.
- 4a) Of the above claim(s) 1 and 4-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3 and 16-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1 and 3-27 are pending.

Election/Restrictions

Applicant's election without traverse of claim 3, and newly added claims 16-27 in the reply filed on December 9, 2009, is acknowledged.

Claims 1 and 4-15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on December 9, 2009.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 1651

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3 and 16-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over newly cited Tal et al (USP 7314741), cited on enclosed PTO-892 Form, in view of Rouse et al and Hiroyuki Tokitoh, both cited on previously enclosed PTO-1449 Form.

Claims are drawn to a process for treating ammonia containing waste water comprising contacting wastewater containing ammonia with a treating material wherein the material comprises a nonwoven carrier and attached to a support. Bacterial sludge comprising anammox bacteria. The wastewater can contain dissolved oxygen at a concentration of not less than 0.5 mg/L.

Tal et al teach at col. 6, lines 15-25, a complex bacterial sludge comprising bacteria including autotrophic anamox bacteria and bacteria including autorophic ammonia-oxidizing bacteria being used for a process for treating ammonia containing wastewater to remove ammonia as nitrogen gas. A carrier and support are disclosed. The water contains oxygen.

The claims differ from Tal et al in that a nonwoven carrier, dissolved oxygen concentration of not less than 0.5 mg/l and acrylic fibers are not disclosed.

Rouse et al teach a process for treating ammonia containing waste water comprising contacting wastewater containing ammonia with a treating material wherein the material comprises a nonwoven carrier and attached to a support. Bacterial sludge comprising anammox bacteria. Note the abstract and page 35, col. 1, lines 1-25 and note figure 2 in col.2. Dissolved oxygen is not required so it can be present in low

Art Unit: 1651

amounts, for example of not about 0.5 mg/l, see page 34, col. 1, lines 25-40. Ammonia is removed during the process.

Hiroyuki Tokitoh teaches acrylic fibers, note page 4, line 4.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to provide for the treatment in one step of the bacterial sludge as disclosed by Tal et al using a carrier and dissolved oxygen content as disclosed by Rouse et al and Tokitoh because the one step would have been more efficient for removing ammonia as nitrogen gas. The ammonia containing wastewater of Rouse et al discloses a dissolved oxygen at a concentration of not less than 0.5 mg/l and to further select polyacrylic fibers for the carrier as disclosed by Hiroyuki Tokitoh, would have been prima facie obvious. To select for an amount of not less than 0.5 mg/l is clearly within the purview of an artisan and one of skill would have expected successful results. The nonwoven carrier would be expected to comprise filaments or fibers. The anammox bacteria are clearly disclosed. Also the active step of bringing the bacteria material and wastewater into contact with one another is clearly disclosed by Rouse et al. Further, Rouse et al do indeed require the use of a reaction tank and to provide dissolved oxygen through the tank is clearly an obvious modification of the cited prior art.

An air guide tube is also an obvious modification and well within the purview of an artisan. The carrier of Rouse et al is perpendicular to the reactor and appears to be a long carrier and acrylic fibers are clearly disclosed by Hiroyuki Tokitoh. Further, conditions of temperature and pH are clearly suggested if not taught by the cited prior

Art Unit: 1651

art combination as well as BOD. Also since the material of Hiroyuki Tokitoh's carrier is the same as claimed the thickness would have been expected to be not less than 5mm and not less than 3 with respect to length to diameter ratio. Therefore, in the absence of persuasive evidence to the contrary the claims are rendered prima facie obvious over the cited prior art.

All claims fail to be patentably distinguishable over the state of the art discussed above and cited on the enclosed PTO-892 and/or PTO-1449. Therefore, the claims are properly rejected.

The remaining references listed on the previously enclosed PTO-892 and/or PTO-1449 are cited to further show the state of the art.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEBBIE K. WARE whose telephone number is (571)272-0924. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1651

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah K. Ware/
Deborah K. Ware
Examiner
Art Unit 1651